ABOUT THE MIAIR WEBPAGE

The Michigan DEQ MIair webpage displays air quality monitoring data and estimated Air Quality Index (AQI) values in near real-time. Data are provided as a public service and should be considered preliminary and subject to verification. As such, data should not be used to formulate or support regulation or guidance. In addition to viewing monitoring data, visitors to the site can receive the latest air quality forecasts, discussions, *Action! Day* declarations, and sign up for electronic notification services.

This document provides an overview of the website. Please forward questions regarding monitoring data to Navnit Ghuman (Ghumann@michigan.gov) of the Air Monitoring Unit within DEQ's Air Quality Division.

AIR QUALITY INDEX (AQI)

The AQI is a tool, a health indicator that provides a thumbnail sketch of current air quality. It is useful for making daily health decisions, but must not be confused with National Ambient Air Quality Standards (NAAQS) that determine an area's compliance with provisions set forth in the federal Clean Air Act. The AQI is calculated using hourly concentrations, where available, and can fall into one of six categories. Learn more about the AQI by visiting the U.S. EPA's AIRNow website at www.airnow.gov.

The latest available AQI values and associated color-coded categories are shown in a table as well as in one of two map views (i.e. Statewide and Detroit Area). Data are updated hourly, and are calculated for each active ozone and $PM_{2.5}$ monitor in the state. The maximum of the two calculated AQI values is displayed if both an ozone and $PM_{2.5}$ monitor are collocated at a monitoring site. Mouse-over a monitoring site on the map to view the site name, the latest maximum AQI value, and the hour for which the AQI is calculated. Click on a monitoring site and you are taken to the *Monitoring Data* page, where you are able to view hourly concentrations for each pollutant monitored at the chosen site.

The latest observed and forecasted AQI values for each forecast location are displayed in the table. A forecast location is actually an area comprising a group of several counties and is generally identified by the largest city in the county grouping. Visit the *Action! Day* page and select a forecast location to view a county listing and map of the area. The AQI shown in the table are the maximum AQI calculated for monitors associated with a particular area. Click on a forecast location to view a list of monitors associated with the area. Due to the somewhat limited availability of data, monitors used to report the AQI may be located outside of the area. However, data are still provided in order to give a general idea of potential air quality conditions.

Forecasts and forecast discussions are routinely updated and indicate the expected maximum AQI categories for the current and next day. Forecasts are based on category (e.g. Good, Moderate, etc.) and are not designed to predict an exact AQI value. Furthermore, only the primary (i.e. maximum) pollutant is shown. When an Action! Day is declared for an area an exclamation symbol (**!**) is placed next to the forecast and the associated counties on the map are shaded red.

How is the AQI calculated?

Real-time AQI calculation for ozone: The AQI for ozone is based on the 8-hour average ozone concentration and is computed by averaging measured hourly ozone concentrations over an 8-hour period. On average, 8-hour average concentrations tend to be about 85% of 1-hour concentrations. AQI values on this website are calculated using a linear regression equation which estimates the 8-hour average based on current 1-hour concentrations. The linear regression equation was developed using a historical relationship between observed 1-hour and 8-hour concentrations.

Real-time AQI calculation for $PM_{2.5}$: The AQI for particle pollution was developed for assessing air quality conditions over a 24-hour period. To assess air quality conditions at a given time using the AQI, one would ideally use the average particle pollution measurement over a 24-hour window centered about the hour being measured (i.e., mid point of the 24 hour range or Mid-24) to compute the AQI. The issue, however, in protecting public health via the AQI for particles is that twelve hours of future data are not available. Therefore a surrogate or estimation method was developed which uses a combination of hourly particle concentrations from the current and previous hours to estimate the Mid-24 average.

ACTION! DAYS

An *Action! Day* is issued for an area when poor air quality is expected to occur. The public is encouraged to "take action" to reduce air emissions and to protect health by reducing physical exertion if levels become unhealthy. An *Action! Day* declaration is typically issued the day prior to when air quality is forecasted to be at or above the Unhealthy for Sensitive Groups level. However, an *Action! Day* may also be issued on the current day for the current day. *Action! Days* may be issued for ozone and/or $PM_{2.5}$ (i.e. particulates). Though an *Action Day!* for ozone will only be issued during the ozone forecasting season extending from May through September. In some forecast locations, formal "*Ozone Action!*" programs are promoted by Clean Air Coalitions. Because these coalitions are locally driven, they receive broad support from community members. Links to partners' websites are listed with each *Action! Day* declaration.

The *Action! Day* webpage provides a listing of current, seasonal, and historical *Action! Days* by forecast location. Click on a forecast location to view a county listing and map of the declaration area. The first *Action! Day* declarations were issued during the 1994 ozone-forecasting season in Detroit and Ann Arbor, and expanded to Grand Rapids and Kalamazoo the following year. In 2005 and late-2006 declarations were expanded to include all present forecast locations. *Action Day!* declarations should not be used as an indicator of historical air quality conditions. Instead, only fully verified monitored concentrations provide a true measure of observed air quality.

AIR QUALITY NOTIFICATION (ENVIROFLASH)

EnviroFlash
Your Environmental News Flash

Provides information about the free EnviroFlash air quality notification service. EnviroFlash sends automated messages about air quality right to your computer, cellular telephone, or PDA. The Michigan program is a partnership between Michigan DEQ and U.S. EPA. EnviroFlash notifications represent forecast data, NOT real-time values.

MONITORING DATA

View a bar chart of hourly air quality measurements for each site and parameter in end-hour local time. Observe the current days' data or use the navigational arrows to go back to a previous day. Ozone data are collected from May through October only.

OZONE MAPS

The latest and yesterdays' maximum 8-hour and 1-hour concentrations are shown in a table. In addition, the latest and loop of the present days' 1-hour concentrations are shown on static and animated maps, respectively. Maps show isopleths, which use interpolating and averaging techniques to estimate ozone concentrations based on actual monitored values. Therefore, concentrations are shown for areas where no actual monitors exist. In addition, estimations may be lower than actual observed concentrations in some cases.

8-hour average ozone concentrations for the current day are calculated as an average of the previous 8 hourly values. Data for the current day are reported in end-hour local time. Yesterdays' maximum values are calculated from data reported in begin-hour standard time.

$PM_{2.5}$ MAPS

The latest and yesterdays' maximum 24-hour and 1-hour concentrations are shown in a table. In addition, the latest and loop of the present days' 24-hour and 1-hour concentrations are shown on static and animated maps, respectively. The current day's 24-hour average $PM_{2.5}$ concentrations are reported as an average of the previous 24 hourly values. Yesterday's maximum 24-hour data are shown as midnight-to-midnight averages to align with National Ambient Air Quality Standard (NAAQS) reporting methodologies.

Data for the current day are reported in end-hour local time. Yesterdays' maximum values are calculated from data reported in begin-hour standard time.

LINKS

This page provides a list of resources and links to other websites related to air quality monitoring and reporting.